This listing of claims will replace all prior versions and listings of claims in this application:

b.) Listing of Claims

1. (original) A spectroscopy system, comprising:

a source system for generating light to illuminate a sample;

a tunable Fabry-Perot filter system for filtering the light generated by the source; and

a detector system for detecting the light filtered by the tunable Fabry-Perot filter from the sample,

wherein at least two of the source system, tunable Fabry-Perot filter system, and the detector system are integrated together.

2. (original) A spectroscopy system as claimed in claim 1, wherein the source system comprises a broadband source.

3. (original) A spectroscopy system as claimed in claim 1, wherein the source system comprises multiple, multiplexed diode chips, operating at different wavelength ranges.

4. (original) A spectroscopy system as claimed in claim 1, wherein the source system comprises at least one superluminescent light emitting diode (SLED) source.

5. (original) A spectroscopy system as claimed in claim 1, wherein the tunable Fabry-Perot filter system comprises multiple, parallel filters.

6. (original) A spectroscopy system as claimed in claim 1, wherein the tunable Fabry-Perot filter system comprises multiple filters for filtering different wavelength ranges.

7. (original) A spectroscopy system as claimed in claim 1, wherein the tunable Fabry-Perot filter system comprises multiple, serial filters.

8. (original) A spectroscopy system as claimed in claim 1, wherein the tunable Fabry-Perot filter system comprises multiple, serial filters with different free spectral ranges.

9. (original) A spectroscopy system as claimed in claim 1, wherein the detector system comprises multiple detectors responsive to different wavelength ranges.

10. (original) A spectroscopy system as claimed in claim 1, wherein the source system and the Fabry-Perot filter system are integrated on a common bench, in a common package.

11. (original) A spectroscopy system as claimed in claim 1, wherein the Fabry-Perot filter system and the detector system are integrated on a common bench, in a common package.

12. (original) A spectroscopy system as claimed in claim 1, wherein the source system, Fabry-Perot filter system, and the detector system are integrated on a common bench, in a common package.

13. (original) A spectroscopy system as claimed in claim 1, wherein the Fabry-Perot filter system comprises at least one MEMS tunable filter.

14. (original) A spectroscopy system as claimed in claim 1, further comprising an isolation system between the source system and the tunable Fabry-Perot system for preventing backreflections in to the source system.

15. (currently amended) A spectroscopy system as claimed in claim 1, wherein: ~~A tunable light source, comprising:~~

the source system comprises a broadband source for generating broadband light; and

a the tunable Fabry Perot filter ~~for~~ spectrally ~~filtering~~ filters the broadband light from the broadband source to generate a tunable signal to irradiate a the sample.

16. (currently amended) A spectroscopy system as claimed in claim ~~A tunable light source as claimed in claim~~ 15, wherein the broadband source comprises a light emitting diode.

17. (currently amended) A spectroscopy system as claimed in claim ~~A tunable light source as claimed in claim~~ 15, wherein the broadband source comprises a superluminescent light emitting diode.

18. (currently amended) A spectroscopy system as claimed in claim ~~A tunable light source as claimed in claim~~ 15, wherein the broadband source comprises an array of diodes.

19. (currently amended) A spectroscopy system as claimed in claim ~~A tunable light source as claimed in claim~~ 15, wherein the broadband source and the Fabry Perot filter are installed in common on an optical bench.

20. (currently amended) A spectroscopy system as claimed in claim ~~A tunable light source as claimed in claim~~ 15, comprising a tap for diverting a portion of the signal from the Fabry Perot tunable filter to a detector.

21. (currently amended) A spectroscopy system as claimed in claim ~~A tunable light source as claimed in claim~~ 20, further comprising a stable spectral reference interposed between the detector and the tap.

22. (currently amended) A spectroscopy system as claimed in claim ~~A tunable light source as claimed in claim~~ 21, wherein the reference is a gas cell.

23. (currently amended) A spectroscopy system as claimed in claim ~~A tunable light source as claimed in claim~~ 21, wherein the reference is an etalon.

24. (currently amended) A spectroscopy system as claimed in claim ~~A tunable light source as claimed in claim~~ 15, further comprising:

a controller for modulating the broadband source; and

a detector for detecting the tunable signal from the Fabry Perot filter; and

a lock-in amplifier responsive to the controller for locking onto a modulation of the tunable signal.

25. (withdrawn) A tunable source, comprising:

a broadband source for generating a broadband signal; and

a tunable filter for generating a tunable narrow band signal from the broadband signal; and

an isolator interposed between the broadband source and the tunable filter for preventing back reflections from the tunable filter into the broadband source.

26. (withdrawn) A tunable source as claimed in claim 25, wherein a broadband source, isolator, and tunable filter are integrated on a common optical bench.

27. (cancelled)

28. (withdrawn) A tunable source, comprising:

a broadband source for generating a broadband signal;

a tunable filter for spectrally filtering the broadband signal in order to generate a narrowband tunable signal; and

an amplifier for amplifying the narrowband tunable signal.

29. (withdrawn) A tunable source as claimed in claim 28, wherein the amplifier is a semiconductor optical amplifier.

30. (withdrawn) A tunable signal as claimed in claim 28, wherein the amplifier is a fiber amplifier.

31. (withdrawn) A tunable signal as claimed in claim 28, wherein the fiber amplifier is one of an erbium, ytterbium, thulium or Raman fiber amplifier.

32. (currently amended) A spectroscopy system as claimed in claim 1, wherein the tunable Fabry-Perot filter system comprises ~~A MEMS Fabry-Perot filter comprising~~ a MEMS tunable movable mirror die and a fixed mirror substrate,

which is bonded to the MEMS mirror die, wherein the filter is edge bonded onto an optical bench.

33. (currently amended) A spectroscopy system as claimed in claim ~~A MEMS tunable filter as claimed in claim~~ 32, wherein the fixed mirror substrate extends below a bottom of the MEMS mirror die for attachment to the optical bench

34. (currently amended) A spectroscopy system as claimed in claim ~~A MEMS tunable filter as claimed in claim~~ 32, wherein the MEMS mirror die is separated from the optical bench and supported by the fixed mirror substrate.

35. (new) A spectroscopy system as claimed in claim 1, wherein the source system is a semiconductor source system, the spectroscopy system further comprises:

an optical bench (B) to which the semiconductor source system and the tunable Fabry-Perot filter system are attached;

a hermetic package (132) containing the optical bench;

a temperature controller (134) for stabilizing a temperature of the semiconductor source system and the tunable Fabry-Perot filter system in the hermetic package.